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April 14, 2003

To: The Commission

Re: UTStarcom, Inc. Comments on Spectrum Allocation Below 3GHz, FCC03-16.
Dockets ET 00-258, IB 99-81, RM-9911, RM-9498, and RM-10024

UTStarcom, Inc. is a US Corporation based in Alameda, California that is in the business of providing very low cost communications infrastructure to service providers around the world. One of our most popular products is our wireless local loop/limited mobility system, based on the Japan Standard RCR28 Personal Handyphone (PHS) air interface and marketed as our Personal Access System. Most of our systems are deployed in developing countries and in Mainland China, starting in smaller communities. As a result, UTStarcom has considerable experience with the provision of limited mobility (Mobile Local Loop) and fixed (Wireless Local Loop) systems to support voice and data service. UTStarcom has introduced our limited mobility solution in the United States in primarily fixed wireless PCS applications and, as a result has learned a great deal about US Spectrum Policy, how it differs from policies in other countries, and how that policy leads to a restriction of choices for US consumers and for small operators. UTStarcom appreciates the opportunity to comment in this proceeding and to explain our view of how new and different services could be made available to US consumers by local operators. As in earlier proceedings, UTStarcom continues to be primarily interested in the Unlicensed PCS spectrum between 1910MHz and 1920MHz.

When contemplating taking away spectrum currently allocated for unlicensed applications, the Commission should consider the specific characteristics of particular spectrum bands as well as what equipment is available and already in service in other countries in those bands. This would seem to be more critical in an environment where most public statements from the Commission have been supportive of adding to, rather than subtracting from the pool of unlicensed spectrum, particularly in the context of facilitating new and innovative services in small communities and rural areas. While the overall US market for telecommunications equipment is very large, the rural US market is not. As a result, leaving the same spectrum available in the US that is used for Voice and Data applications in other countries will quickly lead to very cost effective solutions for US consumers. While the large urban markets in the US can afford to support unique versions of wireless products, smaller markets cannot. Allocation of other unique, non-harmonized, spectrum in the US to replace the current harmonized spectrum will likely result in low volume, expensive solutions for rural US towns. Similar to current solutions,

most of these will be impractical for deployment in most places. The opportunity exists now to make small technical changes to US rules on existing globally harmonized spectrum to facilitate these applications. The Commissions should immediately accept the proposed Unlicensed PCS rule changes proposed by UTAM and UTStarcom, and filed by UTAM, Inc. under these dockets on August 8, 2002, to allow operation of globally standard wireless systems, as well as to increase the capacity of spectrum available for current UPCS Voice Systems in the spectrum between 1910MHz and 1920MHz.

By making a small change to the technical requirements of Unlicensed PCS spectrum between 1910 and 1920MHz, the Commission could enable development of the local mobility services originally envisioned when PCS spectrum was first allocated in the early 1990's. Should the Commission wish to continue to study the potential for other uses for the 1910MHz ~ 1915MHz part of this band, then a rule change similar to that proposed by UTStarcom, UTAM, and NEC should be implemented immediately in 1915MHz ~ 1920MHz while those studies continue. Use of globally standardized equipment, such as UTStarcom's Personal Access System, can allow rural telephone companies, or other actual small businesses, to provide new and different services to their populations. Service delivery is simplified by use of resources that are already in place and without requiring the small businesses to sacrifice their financial independence to large national carriers with priorities other than serving these communities.

These systems would, by their nature, also "automatically" support several mandated functions including TTY over digital wireless, E911 location identification, and wired to wireless number portability and number pooling. They would also support new functions such as simultaneously ringing wired and local mobile phones. While not implemented in the same manner as the very large scale wireless deployments, these systems would provide the desired function at a price that would result in their actual deployment, with very limited financial support, even in the smallest towns.

In the years since UTStarcom's petition was originally filed, we have concluded that the "Coordinated Unlicensed" approach currently used for Unlicensed PCS would be ideal for the Community Wireless as well as for the current Wireless PBX applications. The reason for this is that the Coordinated Unlicensed approach would give operators and potential operators access to small amounts of spectrum on a very local basis, with some protection from interference. This would allow operators to deploy larger community based systems without concern from future uncoordinated interference but would not require them to pay for spectrum covering vast geographic areas that they would not use. The coordinated unlicensed approach, currently run through UTAM, Inc. also provides a very attractive mechanism with respect to microwave relocation cost sharing. UTStarcom's experience with potential rural operators of small PCS systems has been that the allocated microwave relocation cost can be higher than the equipment and spectrum cost combined. By using the UTAM cost allocation formulas, an operator could pay for both spectrum and relocation expense as their subscriber base grows.

The technical solution proposed by UTStarcom and UTAM, Inc., to allow for both expanded capacity for UPCS voice applications, currently allowed only in 1920MHz ~ 1930MHz, as well as for new low cost Community Wireless applications based on globally standard technologies continues to look like the best choice for this spectrum. However, since this proceeding asks for comments on the potential for converting this existing unlicensed spectrum into auctioned licensed spectrum, UTStarcom will propose alternatives based on observations from other countries as well as comment on the proposal for converting this spectrum to traditional high power PCS use.

1915MHz ~ 1920MHz: With respect to the proposals in the Further Notice that consider modification of the technical rules on frequencies between 1915MHz and 1920MHz, UTStarcom would support such a change as a first step and recommends that this be done immediately, independent of other considerations. By using only the spectrum between 1915MHz and 1920MHz, an operator could offer mobile local loop voice services in smaller communities as well as “building based” local exchange mobility in urban areas using just these channels. This would require a change to the technical proposal submitted by UTStarcom and UTAM, Inc. to eliminate the 2MHz “guard band” between a PHS based community wireless service and the 1920MHz to 1930MHz Isochronous UPCS band and to move the control channels from the originally proposed 1910MHz ~ 1912.5Mhz into the available 1915MHz ~ 1920MHz band. The impact of this is that capacity of UPCS systems operating in proximity to PHS systems could be reduced due to interference between systems, though this reduction would not be significantly different from the reduction in capacity based on multiple UPCS systems operating in proximity to each other.

1920Mhz ~ 1930MHz: The Commission requested comments with respect to operation of Community Wireless systems in the current Isochronous Unlicensed PCS Band between 1920MHz and 1930MHz. This spectrum is not as well suited to operation of Community Wireless systems as is 1910Mhz ~ 1920MHz for two reasons. The first of these is that the standard frequencies used by systems of this type in other countries are between 1880MHz and 1920MHz. The frequencies between 1920MHz and 1930MHz are outside the range of existing products and existing electronic components. While it is always possible to have new integrated circuits designed to cover a new range, this would create a “different” product for the rural US market compared to the rest of the world and would likely result in limited choices or high prices for US consumers. The second reason is that there are currently large numbers of Wireless PBXs deployed in the 1920MHz ~ 1930MHz band. Some of these systems are running at or near the capacity of the band and, in fact, some of them require additional spectrum to add more capacity in limited space. Deployment of a Community Wireless system in the same spectrum as an Unlicensed PCS Wireless PBX would interfere with the operation of the Wireless PBX and would limit its capacity.

Community Wireless Licensing Options for 1910Mhz ~ 1915MHz: Looking at some of the stated objectives of spectrum policy, to provide service to rural communities and tribal lands, as well as to foster service options in the marketplace, an approach that made large numbers of licenses available to many small and local businesses would likely result in new and different service offers. In order to accomplish those objectives, it seems logical that some different approach to licensing may be required since existing approaches clearly foster existing services.

UTStarcom would support a licensed/auctioned solution for this spectrum if that option were designed to facilitate low power, small geography, community deployments as opposed to the more traditional “PCS as Cellular” deployments. There could be many better approaches than the proposal of simply pairing 1910MHz ~ 1915MHz with 1990MHz ~ 1995MHz and creating a “G-Block” PCS License on something like a national basis. While the additional 10MHz license auction would likely raise money for the treasury, the likely auction winners would be the same operators who currently hold most PCS and Cellular spectrum in the United States. They would likely continue to use this spectrum heavily in highly populated urban areas and simultaneously continue with their policies of serving rural markets along major highways in the most “efficient” manner possible, meaning that they would install the least possible amount of infrastructure and would continue to use very little licensed spectrum while also precluding anyone else from using it.

Instead of proceeding with a traditional large license area and consistent with the positions of many rural telecommunications advocacy groups, UTStarcom recommends allocating licenses on a very small geographic basis to facilitate low power community wide deployments. Our original view, expressed in our petition for rule making, was that the area covered by a single license should be no more than one county. We continue to believe that would be an appropriate size and would add to that view that any auction should include significant bidding credits for “home town” operators, those having a physical presence in the county, independent of their size. This approach would favor local telephone companies and cooperatives or others who would likely serve the community and would tend not to favor simple license speculation or creation of “paper” small businesses funded and ultimately controlled by the major carriers.

With respect to what spectrum to include in a license, UTStarcom supports creation of low power TDD licenses in 1910MHz ~ 1915MHz only instead of pairing the spectrum with 1990MHz ~ 1995MHz to create additional high power FDD PCS licenses. Licensing low power TDD applications, with power levels set consistent with the current 1850MHz ~ 1910MHz PCS bands, would result in far lower costs for small operators who would expect to run efficient, low power, networks instead of traditional high power tower based systems. This approach would also tend to make the spectrum less attractive to the national operators and leave it for local operators who would be more likely to use it to provide different voice and data services.

As an added approach to increasing competition, UTStarcom proposes that licenses in the band be limited to only 1MHz at a time, to be used primarily for control channels, while the remaining spectrum for traffic channels be shared by all operators. Allocating the 3 MHz between 1910MHz and 1913MHz for three control channels in this manner while leaving 1913MHz to 1920MHz available for traffic as well as for unlicensed use would provide licensed spectrum for three operators while dramatically increasing the utilization of the entire band. This approach to licensing, similar to what is done between 1895MHz and 1920MHz in Japan, would assure multiple carriers in any location access to spectrum while also reducing the quantity of licensed but unused spectrum. While the “traffic” section of the band would be available for use by these new license holders, as well as for unlicensed applications, existing low power PHS system operators with PCS C-Block and F-Block licenses could also use it in combination with their existing systems. This would allow these operators, who have deployed low power PHS infrastructure to provide service using their high power PCS licenses, to add channels for data capacity in spectrum “shared” with unlicensed applications. This combination of low power licensed and unlicensed operation would also facilitate the retention of the 2MHz “guard band” proposed by UTAM and UTStarcom where only systems compatible with the customized etiquette specified for the 1920MHz ~ 1930MHz band would be allowed to operate.

MDS Proposal: With respect to the “Compromise” solution proposed by MDS license holders for “relocation” to paired spectrum including 1910MHz ~ 1916MHz, UTStarcom agrees with the commenters who indicated that the Broadband PCS guard band is not a very good place for MDS relocation, considering the potential interference with adjacent PCS operations. Our observation, however, is that it is unlikely that the separated/paired spectrum at 1910MHz ~ 1916MHz/1990MHz ~ 1996MHz would actually be used to provide MDS service. Instead, this spectrum would likely be sold and used to provide broadband PCS service, creating a “G Block” PCS license which would be granted to existing MDS license holder at no incremental cost to them. While this financial windfall would likely silence any objections with respect to vacating existing MDS spectrum, other strictly financial remedies, such as sharing any auction proceeds for the current MDS frequencies with the incumbents, would seem to be simpler to implement.

Nextel Proposal: Nextel’s proposal to grant themselves a new PCS license using 1910MHz ~ 1915MHz paired with 1990MHz ~ 1995MHz, seems to be very similar to that of the MDS holders, though the objective, of obtaining a nation wide PCS license is stated more clearly. As with the MDS proposal, this would seem to represent a very substantial financial windfall for Nextel and would likely result in multiple years of legal challenges from carriers who paid far more for PCS licenses rather than in any actual service offers for consumers using those frequencies. Should these legal challenges be settled, based on the operating performance of Nextel, as well as on their chosen technical solution and those of the other large providers, granting a license of this type to Nextel would likely then result in additional spectrum use in high density urban areas and in additional vacant spectrum in rural and underserved

areas. UTStarcom believes that a solution that auctions 1910MHz ~ 1915MHz would be far more likely to meet with success than a solution that grants this spectrum in exchange for alternate spectrum.

Summary: Based on the questions posed in this Further Notice, UTStarcom believes that it is practical to immediately implement changes similar to those proposed by UTStarcom and UTAM to allow for Unlicensed PCS Isochronous Services on the frequencies between 1915MHz and 1920MHz. Additionally, UTStarcom believes that this change should be extended to cover the entire lower half of the Unlicensed PCS band from 1910MHz ~ 1920MHz. Should the Commission conclude that auctioning of the spectrum between 1910MHz ~ 1915MHz is preferred, then UTStarcom recommends that license area be defined to be smaller than wireless licenses have been to date and that “overlapping” licenses also be considered in order to provide new and different services, which are currently available in much of the world, to US consumers.

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